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वस्त्र उत्पादों के पानी में घुलनशील पदार्थ के  
निर्धारण के लिए विधि

( पहला पुनरीक्षण )

Method for Determination  
of Water-Soluble Matter  
of Textile Materials

( First Revision )

ICS 59.060.01

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## FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Chemical Methods of Test Sectional Committee had been approved by the Textiles Division Council.

This standard was originally published in 1966. The first revision has been made in the light of experience gained since its publication and to incorporate the following major changes:

- a) Apparatus as per the testing procedure has been updated; and
- b) References to Indian Standards have been updated.

In textile industry textile materials undergo various treatments, in the course of which extraneous matter of various types, such as sizing or finishing material, water soluble matter is gathered by or added to the original textile material. The water-soluble matter if present beyond certain limits in the textile materials adversely affects its quality.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values ( *revised* )'.

*Indian Standard***METHOD FOR DETERMINATION OF WATER-SOLUBLE  
MATTER OF TEXTILE MATERIALS***( First Revision )***1 SCOPE**

This standard prescribes a method for determination of water-soluble matter of textile materials.

**2 REFERENCES**

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated.

**3 SAMPLING****3.1 Sampling for Fibre and Yarn****3.1.1 Lot (Fibre or Yarn)**

The quantity of fibre or yarn from the same source shall constitute a lot. If the lot contains more than 200 kg of fibre or yarn, it shall be divided in sub-lots each weighing 200 kg or less.

**3.1.2** From a sub-lot 15 increments each approximately weighing 10 g shall be taken from different parts so that a representative sample is obtained. All the increments thus collected shall be thoroughly mixed. This shall constitute the test sample.

**3.2 Sampling for Fabrics****3.2.1 Lot (Fabric)**

The quantity of fabrics manufactured under relatively uniform conditions shall constitute a lot.

**3.2.2** The number of pieces to be selected from a lot shall be in accordance with Table 1. The pieces thus selected shall constitute the gross sample.

**Table 1 Sample Size***( Clause 3.2.2 )*

Lot Size (1)	Sample Size (2)
Up to 100	3
101 to 300	4
301 to 500	5
501 and above	7

**3.2.3** From each piece in the gross sample about 25 g of fabric shall be taken out from at least two different parts. The parts shall then be cut into further smaller pieces and thoroughly mixed. The pieces thus collected shall constitute the test sample.

**4 TEST SPECIMENS**

From the test sample, cut out at least two test specimens each weighing about 10 g. Cut the test specimens into small pieces.

NOTE — If the sample under analysis is loose fibre, take about 5 g of the test specimen.

**5 CONDITIONING OF TEST SPECIMENS**

Prior to test, the test specimens shall be conditioned for 24 h to moisture equilibrium in a standard atmosphere at  $65 \pm 2$  percent relative humidity and  $27 \pm 2$  °C temperature (*see* IS 196). However, in case of fabrics which weigh more than 270 g/m<sup>2</sup>, the test specimens shall be conditioned for 48 h.

**6 APPARATUS**

**6.1 Flat-Bottom Flasks**, of suitable capacity with a glass stopper incorporating a stop-cock.

NOTE — The flasks that are used for the preparation of the extract should not be used for any other purpose.

## 6.2 Water Cooled Condensers

## 6.3 Hot Air Oven

## 6.4 Weighing Balance, with a resolution of 0.1 mg.

# 7 REAGENTS

## 7.1 Distilled Water, conforming to IS 1070.

# 8 PROCEDURE

**8.1** Condition the test specimens to moisture equilibrium in the standard atmosphere (*see 5*) and weigh accurately each test specimen.

**8.2** Put a test specimen in the flask and add sufficient amount of water to it to make a liquor to material ratio of 20 : 1 (*see Note 1*). Connect the flask to the condenser and bring rapidly to the boil and continue to boil the liquor gently for 60 min. Disconnect and remove the flask while the liquor is still boiling and close it immediately with the glass stopper fitted with stop-cock.

Rapidly cool the flask to room temperature ( $27 \pm 2$  °C). Do not remove or open the tap until ready for filtration. Reject any extract where the flask is not under vacuum at the time of opening. Filter the extract and wash the residue with small amount of water. Take the filtrate and washings in a tared vessel and evaporate the extract

to dryness (*see Note 2*). Dry the residue to constant weight at 105 to 110 °C.

### NOTES

**1** If the test specimen is wool, the liquor to material ratio should be, 50 : 1.

**2** The filtrate and washings may be diluted to a suitable volume and a measured amount of the solution may be evaporated for estimation.

**8.3** Calculate the water-soluble matter as a percentage of the conditioned weight of the specimen by the following formula:

$$P = \frac{W_2}{W_1} \times 100$$

where

$P$  = percentage of water-soluble matter;

$W_1$  = weight in g, of the residue (*see 8.2*); and

$W_2$  = weight in g, of the conditioned test specimen (*see 8.1*).

**8.4** Repeat the test as given in **8.2** with the remaining test specimen(s) and calculate the percentage of water-soluble matter in each test specimen.

# 9 REPORT

Calculate the average of the values obtained as in **8.3** and **8.4**, and report it as the percentage of water-soluble matter of the textiles.

**ANNEX A***( Clause 2 )***LIST OF REFERRED INDIAN STANDARDS**

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
196 : 1966	Atmospheric conditions for testing ( <i>revised</i> )	1070 : 1992	Reagent grade water — Specification ( <i>third revision</i> )

## ANNEX B

( Foreword )

## COMMITTEE COMPOSITION

Chemical Methods of Test Sectional Committee, TXD 05

<i>Organization</i>	<i>Representative(s)</i>
The Synthetic and Art Silk Mills Research Association, Mumbai	DR MANISHA MATHUR ( <b>Chairman</b> )
Ahmedabad Textile Industry's Research Association, Ahmedabad	SHRIMATI DEEPALI PLAWAT SHRI JIGAR DAVE ( <i>Alternate</i> )
Bidhata Industries Pvt Ltd, Mumbai	SHRI ROHIT PACHERIWALA R. K. PACHERIWALA ( <i>Alternate</i> )
Directorate General of Quality Assurance (CQAT & C), Kanpur	SHRI ANUJ KUMAR SHUKLA SHRI S. J. KOLARKAR ( <i>Alternate</i> )
Global Organic Textile Standard, Thane	SHRI RAHUL BHAJEKAR SHRIMATI PRACHI GUPTA ( <i>Alternate</i> )
ICAR-Central Institute for Research on Cotton Technology, Mumbai	DR SUJATA SAXENA DR A. S. M. RAJA ( <i>Alternate</i> )
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Texanlab Laboratoires Pvt Ltd, Navi Mumbai	SHRI MILIND R. MARATHE SHRI VIVEK PATIL ( <i>Alternate</i> )
Textiles Committee, Mumbai	SHRI KARTIKAY DHANDA DR P. RAVICHANDRAN ( <i>Alternate</i> )
The Bombay Textile Research Association, Mumbai	SHRI M. P. SATYANARAYAN SHRIMATI SAROJ VAIRAGI ( <i>Alternate</i> )
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U P Textile Technology Institute	DR ARUN KUMAR PATRA DR SUBHANKAR MAITY ( <i>Alternate</i> )

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Venture Instrumentation Technologies Pvt Ltd, Bengaluru	SHRI VISHAL VIJAY BABU SHRI NAGARAJ C. ( <i>Alternate</i> )
Wool Research Association, Thane	DR MRINAL CHOUDHARI SHRIMATI SAMITA BAIT ( <i>Alternate</i> )
BIS Directorate General	SHRI J. K. GUPTA, SCIENTIST 'E' AND HEAD (TEXTILES) [REPRESENTING DIRECTOR GENERAL ( <i>Ex-officio</i> )]

*Member Secretary*

SHRI DHARMBEER  
SCIENTIST 'C' (TEXTILES), BIS





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This Indian Standard has been developed from Doc No.: TXD 05 (17375).

### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi